

# GERMANY

By Harold R. Newman

The economy of Germany improved in 1999 compared with that of 1998. Stronger export demand from outside Western Europe as a result of world economic recovery, industrial investment, productivity increases, and favorable exchange rates were contributing factors to the economic growth. The gross domestic product showed a 1.5% growth rate in 1999. Germany's economy remained the largest in Europe, equivalent to slightly more than \$2 trillion, and accounted for more than 25% of the European Union's (EU) economy. Unemployment continued to be a problem and averaged about 10% of the labor force during 1999. The top priorities of the Government were to maintain economic growth and to continue the development of the five Laender (states) that make up eastern Germany. This area was still dependent upon huge net resource transfers from the west via a variety of Federal and state social payments, entitlement and investment grants, and tax waiver incentives for investment and trade (U.S. Bureau of European Affairs, 1999).

## Government Policies and Programs

The Government's declared primary objective was to stimulate economic growth and employment and to get a grip on rising Government debt. To this end, the Government was pursuing a combination of budget consolidation, growth incentives, and structural reform. Although the state intervenes in the economy through the provision of subsidies to selected sectors and in the ownership of some segments of the economy, competition and free enterprise were promoted as significant segments of Government policy.

Germany has been one of the main supporters of European unification and a strong advocate of closer European economic integration. Its economic and commercial policies were increasingly determined by agreements among EU members. In harmony with the Schengen Agreement, which became effective on March 26, 1995, most of the EU member states, which included Germany, agreed to discontinue border controls. This internal market has provided a boost for Germany's export-oriented economy, as well as for other European economies.

On April 29, 1998, new energy legislation designed to introduce competition to the traditionally closed electricity and natural gas sectors came into force. The legislation would, among other things, abolish utilities-delineated monopoly supply areas and create a framework for third-party access to electricity grids and natural gas pipelines. Lignite mining in eastern Germany will be protected from competition through as late as 2005. Renewable and cogeneration plants are given special significance under the new legislation (U.S. Energy

Information Administration, December 1998, Germany; accessed September 27, 1999, at URL <http://www.eia.doe.gov/emeu/cabs/germany.html>).

In April 1998, Germany's constitutional court cleared the way for German membership in the European Monetary Union (EMU), and on April 23, 1998, Germany's Parliament (the Bundestag) voted to join the European single currency zone. The EMU began the process of creating a single European currency, referred to as the "euro" (€), on January 1, 1999. Individual member states' currencies including the German deutsche mark (DM) were to be phased out by July 1, 2002. On January 1, 1999, the euro was introduced in Germany (U.S. Energy Information Administration, December 1998, Germany, accessed September 27, 1999, at URL <http://www.eia.doe.gov/emu/cabs/germany.html>).

## Environmental Issues

The environment in Germany is the responsibility of the Federal Ministry for the Environment, Water Conservation and Nuclear Safety. Falling within its purview are the Federal Environment Agency in Berlin, the Federal Office for Nature Conservation in Bonn, and the Federal Office for Radiation Protection in Salzgitter.

Environmental concerns that relate to mining are addressed under the Federal mining law and its provisions for environmental impact assessments that must be completed before mining can start. The objective of the assessment is to identify and evaluate all environmental consequences of a planned project by taking into account various design options. The environmental evaluation process in Germany presents a risk for the company involved because even after completion of the assessment, which usually involves considerable time and resources, project approval is not guaranteed.

Following the reunification of the country in 1990, the major task of energy and environmental policy was to merge the radically different systems of the former German Democratic Republic (GDR) and the Federal Republic of Germany (FRG). The FRG had a diversified and mainly privately owned system of energy supply and a commitment to environmental protection. In contrast, the GDR's energy sector was highly centralized, predominantly state-owned, dependent on lignite (brown coal) as its primary fuel, and a major domestic source of air pollution. Lignite mines were either closed or retrofitted with gas desulfurization equipment (U.S. Energy Information Administration, December 1999, Germany—Country analysis briefs, accessed December 14, 1999, at URL <http://www.eia.doe.gov/emeu/cabs/germe.html>).

Germany's air quality had also suffered owing to the country's geographic proximity to the highly polluting, centrally planned economies of the Soviet bloc. Emissions that caused acid rain and damaged forests blew over Germany. With the breakup of the Soviet block and dissolution of the Soviet Union, this region is now polluting less owing to stricter emission controls, a downturn in production, and an orientation toward processes that cause less pollution. This has improved Germany's air quality.

## Production

The minerals and metals industry, which included industrial processing, construction, and mining contributed almost 1% to the GDP. Production in the mining and metals industries depended on a variety of forces that included the availability of materials and supply and demand. The easing of the worldwide recession was a positive factor for those industries that depended on exporting their products. The importance of certain sectors of the German mining industry has decreased steadily during the past decades. The high costs of production in Germany compared with those of competing foreign producers and the problems caused by trying to balance production between the merged GDR and the FRG helped constrain production (table 1).

The technological standard of German mining operations was world class. Even though its underground mining sector has shrunk significantly in recent years, Germany has remained a world leader in the mining equipment manufacturing sector. The country was a dominant world force in the manufacturing of large hydraulic mining shovels and in the more-specialized continuous mining equipment and conveyor systems used in large open pit lignite mines (Mining Magazine, 1999b).

Notwithstanding the general contraction of the industry, the production levels of certain minerals remain important domestically and on a world scale. For example, lignite production ranked 1st in the EU and in the world; marketable rock salt and potash, 1st in the EU and 3d in the world; and hard coal production, 1st in the EU and 11th in the world (Mining Magazine, 1999a).

## Trade

Foreign trade was a key element in Germany's economic life with one-third of national output going to the external sector. After the United States, Germany had the largest foreign trade volume in the world and was the world's third largest economy. Two-way United States-Germany trade was worth more than \$87 billion in 1999. Outside the EU, the United States and Japan were Germany's major trading partners (U.S. Bureau of European Affairs, 1999). Table 2 lists the relation of selected classes of mineral commodities on Germany's balance of payments position in relation to the EU and the world.

Germany, which was a major processing nation, relied mainly on imports to feed the metals-processing industry, which transformed raw materials into products that supplied the manufacturing industry and provided the bulk of the country's exported materials. Tables 3 and 4 list exports, as well as

reexports, and imports of selected mineral commodities by Germany in 1998 (the latest year for which data are available), respectively.

## Structure of the Mineral Industry

The structure of the industry in Germany and the principal companies operating in the production and processing of metals and minerals are listed in table 5. Most of the producing and processing facilities still in operation were small compared with those in the former FRG, except for lignite and potash, both of which were very large operations. The restructuring and privatization of the facilities in the former GDR continued in 1999. The Interest Management Association (Treuhandanstalt) retained control of some of the companies until they were sold or closed.

## Commodity Review

### Metals

**Aluminum.**—In 1999, Germany's primary aluminum industry was the largest in the EU, although it was considered to be medium sized when compared with other world producers. VAW Aluminium AG, which was a member of the VIAG Group, accounted for more than 75% of the country's primary aluminum production. VAW's wholly owned aluminum smelters in Germany and its participating interests in smelters abroad ensured the supply of input metal to the company's downstream fabricating operations.

VAW was to invest about \$62 million in three rolling mills purchased from Reynolds Metals Co. in 1998. VAW planned to increase total production capacity at its facilities in Hamburg, Germany, Cisterna, Italy, and Iruzun, Spain, to 340,000 metric tons per year (t/yr) from 230,000 t/yr before the end of 2002. The Hamburg plant would focus on production of brazing sheet for heat exchangers and strip for the construction industry, the facilities in Cisterna would manufacture converter foil and lithograph sheet, and the plant in Iruzun would concentrate on converter foil. On completion of this capital expenditure program, VAW would produce about 800,000 t/yr of rolled products from all its operations (VAW Aluminium AG, November 24, 1999, VAW Aluminium AG to invest millions in rolling sector, accessed March 3, 2000, at URL [http://www.vaw.com/pm\\_invest.htm](http://www.vaw.com/pm_invest.htm)).

**Copper.**—Norddeutsche Affinerie AG (NA) acquired secondary copper producer Hüttenwerke Kayser AG (HK). NA operated a custom smelter and refinery at Hamburg and was the world's fifth largest custom copper smelter with production of about 360,000 t/yr of copper cathode, 320,000 t/yr of copper rod, and 176,000 t/yr of copper billets and cake. HK produced about 180,000 t/yr of cathode from scrap. The combined companies would become Europe's largest copper cathode producer with about 14% of the European market for continuous cast copper rod (Engineering and Mining Journal, 1999b).

NA announced that it intended to increase its reliance on copper concentrates to feed its Hamburg smelter and to reduce

dependence on the scrap market, which it considered to be unreliable and volatile. The combined entity of NA and HK was expected to reduce the two companies dependence on scrap feed by as much as 100,000 t/yr. A \$33 million upgrade was being considered for the HK facility where existing capacity was regarded as being too small. The Hamburg plant was undergoing a \$120 million upgrade (Mining Journal, 1999c). IMI Refiners announced that it was shutting down its Walsall refinery at yearend 1999. This was expected to free up some copper scrap. The copper scrap that used to go to IMI an estimated 45,000 metric tons (t) would become available to the market (Metal Bulletin, 1999c).

**Gold.**—Commerzbank AG which was acquired a 35% stake in Argos Heraeus of Switzerland, which was one of the world's largest gold refineries, for \$6.6 million. The acquisition made Commerzbank the first bank outside Switzerland to participate in the precious-metals market from the refining stage to the sale of products and derivatives. Commerzbank was intending to expand its involvement in the gold business, and was considering purchases in the Americas, Asia, and Europe, (Mining Magazine, 1999b).

**Magnesium.**—Aluminiumschmelzwerk Oetinger GmbH, BAS Brinker Aluminium-Schmelzwerk GmbH, and Hannoversche Salzschlacke-Entsorgungs GmbH, which were a group of secondary aluminum producers, were planning to set up a new company, MR Magnesium-Recycling GmbH, that would specialize in recovering magnesium from residues and scraps. The decision to develop proprietary technology and to construct a specialized magnesium plant came as a result of an increase in magnesium alloy scrap received by secondary aluminum companies. Much of this increase resulted from the BMW, the Mercedes Benz, and the Volkswagen automobile companies changing from aluminum alloy to magnesium alloy in car manufacturing. The group believed that automobile companies will become major consumers of magnesium alloys (Magnesium Monthly Review, 1999).

**Platinum.**—The European Court of First Instance, Germany, has denied the merger of the platinum mining operations of Lonmin Plc. (formerly Lonrho Plc.) of the United Kingdom and Gencor Ltd. of South Africa. The companies had appealed an earlier negative decision, but the Court found that the products' sales venue was the jurisdiction that counted, not where the platinum was mined. The full court's decision was expected at a future date (Engineering and Mining Journal, 1999a).

**Steel.**—The European Commission rejected proposals by the German Government to exempt its steel and metals industries from the new energy tax that came into force in 1999. The Commission objects to the plan to exempt 27 energy-intensive sectors as being an unfair subsidy. Under the proposals, the first processing stage for crude steel, ferroalloys, aluminum, lead, and zinc would not be subjected to additional taxes. Negotiations were underway to change the proposals so they will meet EU approval (Metal Bulletin, 1999b).

European steel makers made very few advances in the field of

direct reduced iron (DRI). The lack of interest would appear to be the success of the blast furnace. Although centuries old, the technology encased in the blast furnace has yet to be surpassed. Even after installation costs, depreciation, and high replacement costs, the blast furnace still appears to be the cheapest source of high-quality Fe units. In western Europe, Ispat International minimill in Hamburg was the only plant making DRI (Metal Bulletin, 1999a).

Preussag Stahl AG was a steel producer that supplied specially welded large pipes for long-distance petroleum and natural gas pipelines, as well as flats and beams. Built to advanced technological standards, the Preussag electric steel works, which had been brought on line in Peine in late 1997, had a capacity of 750,000 t/yr.

**Uranium.**—The ongoing clean-up of the former Soviet Union uranium mining operations in the former GDR was viewed as Europe's biggest mine rehabilitation project. When the Wismut Mines were in production, the only goal was to maximize uranium output. This resulted in an environmental nightmare. At various sites, 48 waste rock piles cover a surface area of about 15 square kilometers (km<sup>2</sup>) and contain about 311 million cubic meters (Mm<sup>3</sup>) of waste material. In addition, 14 tailing ponds contain 160 Mm<sup>3</sup> of residue from uranium-ore-processing plants and cover a surface area of 7 km<sup>2</sup>. Continuing remediation work in 1999 has been focused on decommissioning facilities and immobilizing contaminated material in a manner that limits long-term hazards to humans and the environment. The German Government was expected to spend more than \$9 billion on this rehabilitation project during the next 10 to 15 years (Engineering and Mining Journal, 1998).

### *Industrial Minerals*

**Bentonite.**—In terms of overseas developments, Süd-Chemie AG was the largest bentonite producer in Europe. The company controlled or had part shares in companies in France, Indonesia, Mexico, the Republic of Korea, Turkey, and the United States. Süd-Chemie's main business was in Gammelsdorf, Bavaria, where it produced calcium, sodium, and acid activated bentonite products.

**Cement.**—The Treuhandanstalt sold the former GDR's cement operations to mostly German or other Western European companies. A number of these plants were being extensively modernized and upgraded for more cost-efficient production.

**Clays.**—Between 140 and 160 small- to medium-sized clay mines were in operation in 1999 in Germany. About one-half of the high-quality refractory and ceramic clays produced were from the Rhineland-Palatinate area. Production in Bavaria was concentrated in the Oberfalz area.

Although Germany was the second largest producer of kaolin in Western Europe after the United Kingdom, it still had to import about 50% of its requirements of high-quality paper-coating-grade kaolins. Most of the German kaolin was mined in Bavaria, and Amberger Kaolinwerke GmbH was the largest producer with mines in Hirschau.

**Graphite.**—Graphitwerk Kropfmühl AG was the only company that mined and processed natural graphite in Germany. The company operated a mine and plant at Kropfmühl, Passau, and a plant at Werk Wedel, Holstein. About one-half of the company's production, which has been falling in recent years because of declining reserves, went into the European refractory industry.

**Gypsum.**—Germany was a major European producer of crude gypsum. Gebr. Knauf Westdeutsche Gipswerke GmbH which was the largest producer, accounted for more than two-thirds of the gypsum produced. The company operated mines in Baden-Württemberg, Bavaria, Hesse, Saarland, and Lower Saxony. Rigips Baustoffwerke GmbH, which was the second largest producer, operated mines in Baden-Württemberg and Lower Saxony.

**Potash.**—After closings and restructuring, Kali und Salz AG (K+S) operated 17 mines and plants and had a potassium chloride production capacity of 4 million metric tons per year (Mt/yr); of that, 2 Mt/yr was standard grade, and 2 Mt/yr was granular grade. K+S had 14% of the world potash market and a 30% share of the market for potassium sulfate. Its product grades included standard and granular. K+S's Zielitz Mine was the company's largest operation and the linchpin of its potassium operations. The mine underwent a major investment program that resulted in a practically new potash operation. Germany was the world's third largest potash producer after Canada and Russia.

Most of the investment of more than \$200 million at Zielitz will be expended on the installation of the industrial potash plant, the refurbishment of the power-generation plant, and the refurbishment of the drying plant. The operation will have a capacity of 1.25 Mt/yr of potassium oxide, and when completed, will be the largest potash operation in Western Europe (Phosphorus & Potassium, 1998).

### **Mineral Fuels**

Germany relied principally on fossil fuels as sources of energy. The most important primary energy source in Germany's consumption of primary energy was petroleum with a 40% share of total consumption followed by natural gas with a 20% share; coal, 15% share; lignite, 13% share; nuclear, 10% share; hydroelectricity and wind power, 1% share each. About 30% of Germany's primary energy requirement was satisfied from domestic sources; the remaining 70% was imported. By 2020, the share of imports was expected to rise to 80%, although oil would still be the number one energy source (World Coal, 1999).

The amount of electricity from alternate renewable energy sources [5 billion kilowatt hours (GkWh)] grew by 30% in 1999. The biggest renewable energy source was wind power, which contributed 2.9 GkWh (Alexander's Gas & Oil Connections, February 2, 1999, Renewable energy generation grew 30% in Germany, accessed February 11, 1999, at URL <http://www.gasandoil.com/goc/news/nte90672.htm>).

**Coal.**—Anthracite and Bituminous. The gradual phase out of subsidies that have for so long supported Western Europe's coal industry was continuing. This was in line with EU policy to eliminate subsidies to industries. According to the plan for mine closures, subsidies will be reduced by half, coal production will be reduced to 30 million metric tons, coal industry employment will be reduced to 36,000 people, and the number of mines will be reduced to 10 or 11 by 2005. All the mines of the Ibbenbüren, the Ruhr, and the Saar coalfields were merged into Deutsch Steinkohle AG, which was a subsidiary of Ruhrkohle AG. About 77% of hard coal production was from the Ruhr coalfield. With its deposits of bituminous coal, the Saar coalfield was also important (Mining Journal, 1999b).

**Lignite.**—Mining was mainly in the Rhenish area to the west of Cologne and the Lusatian area near Dresden. Lignite mining was under less economic pressure than hard coal mining.

The lignite deposit in the Rhine region is the largest single formation in Europe and has considerable domestic importance. Rheinbraun AG, which was Germany's major lignite producer, mined more than 100 Mt/yr from four open cast mines—Bergheim, Garzweiler, Hambach, and Inden. The Hambach Mine alone accounted for one-third of total lignite output in the Rhenish mining area. Lignite was the main source of energy for the coal-fired power stations of RWE Energie Group (RWE Energies, [undated], The mines, accessed December 19, 2000, at URL [http://www.rwe.com/1.0.1\\_RWE\\_engli...sse/Publikationen/Riese?Grube.html](http://www.rwe.com/1.0.1_RWE_engli...sse/Publikationen/Riese?Grube.html)).

Cyprus Amax Minerals Co. sold the balance of its U.S. coal assets to Ruhrkohle International Mining GmbH, which was a unit of the RAG Group, for \$1.1 billion. Ruhrkohle was expanding outside Germany as its coal production there declined. After acquiring Cyprus Amax's coal assets Ruhrkohle became one of the biggest United States coal producers alongside Rheinbraun, which owned 94% of Consolidated Energy Inc. The acquisition also raised Ruhrkohle's International coal production to some 72 Mt/yr from about 10 Mt/yr (Mining Journal, 1999c).

### **Infrastructure**

Germany had a total of 625,600 kilometers (km) of highways and roads that ranged from the high-speed Autobahn system to undeveloped gravel and packed-dirt country roads. Of this total, the Autobahn consisted of 10,814 km; national highways, 43,786 km; State highways, 99,447 km; and municipal, county, and secondary roads, 471,553 km. The railroad system included 45,468 km of track, about 90% of which was Government owned. Of this total, 44,769 km was 1.435(m) standard-gauge track, and 699 km was 1.000-m gauge track. Pipelines included a 3,644-km line for petroleum, 23,964-km line for refined products, and a 97,564-km line for natural gas. Inland waterways and canals consisted of 7,541 km and 31 major ports; the Kiel Canal served as an important connection between the Baltic Sea and the North Sea, and the Rhine-Main-Danube Canal served as a connection between the North Sea and the

Black Sea. The major maritime ports of Hamburg, Rostock, Bremerhaven, Bremen, and Wilhelmshaven, in descending order, accounted for about 70% of total merchandise traffic.

## Outlook

Germany's economy is expected to expand steadily for the next few years despite the huge burden of unification costs on the national economy. As growth in Germany's international trading partners increases, industrial production is expected to grow to meet the demands for consumer products. Restructuring industries, which included mineral-resource industries, to be more efficient was expected to result in increased unemployment, which, in turn, would cut into the available resources of the Federal Government in the form of payments for unemployment compensation, retraining, and other social costs. This is expected to continue in the short term.

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65180 Wiesbaden, Germany
- Bundesanstalt für Geowissenschaften und Rohstoffe  
(Federal Institute for Geosciences and Natural Resources)  
Stilleweg 2, Postfach 51 01 53  
30361 Hannover, Germany
- Bundesministerium für Forschung und Technologie  
(Federal Ministry for Research and Technology)  
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- Bundesministerium für Wirtschaft, Abteilung III,  
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Economics, Section III, Energy Policy and Mineral Raw  
Materials]  
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- Deutsches Institut für Wirtschaftsforschung (German Institute  
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Königen-Luise Strasse 5  
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TABLE 1  
GERMANY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/ 3/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/	
<b>METALS</b>						
Aluminum:						
Alumina, Al <sub>2</sub> O <sub>3</sub> equivalent						
Calcined	thousand tons	750	755	738 r/	750 r/ e/	600
Hydrate	do.	994	792	800	700 r/ e/	700
Metal:						
Primary		575,160	576,422	571,944	612,381	633,804 4/
Secondary		530,990	416,915	432,467	453,328	482,658 4/
Arsenic, white, Ar <sub>2</sub> O <sub>3</sub> content e/		250	250	250	200	200
Cadmium, metal, refinery including secondary e/		1,150	950	1,000	1,020 4/	1,145 4/
Cobalt, metal including alloys e/		800	800	600	500	500
Copper, metal:						
Smelter:						
Primary		242,100	296,800	273,100	258,600 r/	266,400 4/
Secondary e/		66,000	88,600	76,000	80,000 r/ 4/	60,000
Refined:						
Primary		247,200	315,600	297,800	322,800 r/	271,000
Secondary		369,100	355,200	375,800	373,000 r/	425,000
Iron and steel:						
Ore and concentrate:						
Gross weight		68,700	100,200	200,900	200,000 e/	--
Fe content		960	14,600	28,100	28,000 e/	--
Metal:						
Pig iron	thousand tons	30,012	27,722	30,939	30,162	27,394 4/
Ferroalloys 5/	do.	280	95	96	100 e/	90
Of which ferrochromium	do.	16	25	26	28 e/	17 4/
Steel, crude	do.	42,051	39,791	45,009	44,046	42,056 4/
Semimanufactures	do.	34,316	32,889	37,074	36,591	32,000
Lead, metal:						
Smelter						
Primary		146,040	140,000	161,300 r/	100,000 e/	100,000
Refined:						
Primary		146,750	88,700 r/	164,800 r/	176,800	169,557 4/
Secondary		164,400	149,400	164,400 r/	203,400	204,000
Platinum-group metals, metal, refined e/	kilograms	65,000	60,000	60,000	60,000	60,000
Selenium, metal	do.	120	115	100	100	100
Silver, metal, refined e/	do.	600,000	600,000	500,000	500,000	500,000
Tin, metal, primary and secondary		15,000 e/	14,836	15,708	15,000 e/	1,000
Uranium, concentrate, U <sub>3</sub> O <sub>8</sub> content		35	46	27	25 e/	25
Zinc, metal including secondary		322,460	327,015	317,681	333,968	332,852 4/
<b>INDUSTRIAL MINERALS</b>						
Abrasives: e/						
Natural, pumice						
Primary		300,000	210,000	212,000	300,000	250,000
Artificial, corundum						
Primary		56,000	60,000	60,000	60,000	50,000
Barite, marketable (contained BaSO <sub>4</sub> )		122,268	121,476	118,698	123,300 r/	118,500 4/
Boron materials, processed borax, Na <sub>2</sub> B <sub>4</sub> O <sub>7</sub> 10H <sub>2</sub> O content e/		1,500	1,500	1,200	1,200	1,000
Bromine e/		750	750	700	600	500
Cement:						
Clinker (intended for market)						
Primary	thousand tons	1,200	1,100	1,200 e/	1,000 e/	1,000
Hydraulic	do.	37,480	36,104	37,000 e/	36,610 r/	36,700
Chalk, crude including ground	do.	450	450	425	400	400
Clays:						
Bentonite						
Primary	do.	529	491	511	509 r/	500
Ceramic clay e/						
Primary	do.	3,500	3,500	3,500	5,000 r/	8,000
Fire clay e/						
Primary	do.	1,000	1,000 4/	1,000	1,000	1,000
Fuller's earth e/						
Primary	do.	500	600 4/	500	600	500
Kaolin, marketable						
Primary	do.	1,925	1,794	1,800 e/	3,400 r/	3,500
Other, including brick clay						
Primary	do.	20,000 e/	21,600	22,000	20,000	20,000
Diatomite	do.	50 e/	--	--	54 r/	50
Feldspar		432,624	359,666	455,969	460,000 e/	450,000
Fluorspar:						
Acid-grade e/						
Primary		38,000	31,000	22,500	25,000	26,000
Metallurgical-grade						
Primary		1,081	1,448	1,500 e/	1,500 e/	1,500
Total		39,081	32,448	24,000 e/	26,500 e/	27,500

See footnotes at end of table.

TABLE 1--Continued  
GERMANY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/ 3/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/
<b>INDUSTRIAL MINERALS--Continued</b>					
Graphite, marketable	5,214	2,603	1,030	270 r/	300
Gypsum and anhydrite, marketable e/ thousand tons	2,829 4/	3,000	3,000	2,500	2,500
Lime, quicklime, dead-burned dolomite e/ do.	8,000	7,570	7,600	7,000	7,000
Magnesium salts (byproduct of potash mining) do.	1,000	1,169	1,200 e/	1,200 e/	1,200
Nitrogen, N content of ammonia do.	2,518	2,485	2,471	2,512	2,406 4/
Phosphate materials:					
Phosphatic fertilizers, P <sub>2</sub> O <sub>5</sub> content	750	750	800 e/	700 e/	700
Thomas slag: e/					
Gross weight thousand tons	150	150	150	150	150
P <sub>2</sub> O <sub>5</sub> content	19,000	19,000	19,000	19,000	19,000
Pigments, mineral, natural	5,000 e/	3,754	4,176	4,000 e/	4,000
Potash, K <sub>2</sub> O content thousand tons	2,916	3,332	3,423	3,582	3,543 4/
Pumice, marketable e/ do.	625 4/	600	600	600	500
Salt, marketable:					
Evaporated do.	617	731	700 e/	9,098 r/	8,965 4/
Rock and other	14,607	15,176	15,087	5,056 r/	6,921 4/
Sodium compounds, n.e.s.:					
Soda ash, manufactured thousand tons	1,400	1,400	1,400 e/	1,400	1,400
Sulfate, manufactured e/ do.	110 4/	100	100	100	100
Stone, sand and gravel:					
Stone:					
Dimension, crude and partly worked e/	200,000	200,000	100,000	100,000	100,000
Dolomite and limestone, industrial thousand tons	60,000	64,000	68,000 e/	71,900 r/	70,000
Quartz and quartzite	29,500	30,000	26,000 e/	25,000	25,000
Slate	90,000	90,000	70,000 e/	70,000	70,000
Sand and gravel:					
Building sand and gravel thousand tons	250,000	300,000	382,000	372,500 r/	382,700 4/
Gravel including terrazzo splits e/ do.	200,000	225,000	200,000	200,000	200,000
Sand:					
Foundry do.	3,000	3,000	4,000 e/	3,500	3,500
Industrial (glass) do.	7,315	5,503	9,800 e/	10,000 r/	10,000
Sulfur, byproduct: e/					
Of metallurgy	30,000	30,000	25,000	25,000	25,000
Of natural gas and petroleum	1,200,000	1,000,700 4/	1,085,000 4/	1,100,000	1,134,900 4/
Other	90,000	90,000	50,000	50,000	60,000
Total	1,320,000	1,120,000	1,160,000	1,180,000	1,220,000
Talc and steatite	14,170	10,005	8,819	9,000 e/	9,000
<b>MINERAL FUELS AND RELATED MATERIALS</b>					
Asphalt and bitumen, natural	14,652	9,821	11,285	10,000 e/	9,000
Coal:					
Anthracite and bituminous, marketable thousand tons	53,563	47,913	46,792	40,960 r/	39,531 4/
Lignite do.	192,753	187,247	177,099	166,035 r/	161,282 4/
Coke:					
Of anthracite and bituminous coal do.	11,000 e/	10,662	10,744	10,277	8,568 4/
Of lignite do.	175	178	185	175 e/	175
Fuel briquets:					
Of anthracite and bituminous coal do.	379	357	322	185 r/	174 4/
Of lignite (including dust and dried) do.	5,011	4,896	3,539	2,345 r/	2,072 4/
Gas:					
Manufactured:					
Blast furnace million cubic meters	4,800	4,239	4,655	4,500 e/	4,000
Coke oven do.	2,600	2,406	2,539	2,500 e/	2,000
Total do.	7,400	6,645	7,194	7,000 e/	6,000
Natural:					
Gross do.	21,452	23,058	22,473	22,000 e/	23,000
Marketed do.	19,000 e/	21,360	20,780	19,900 e/	21,200
Peat:					
Agricultural use thousand tons	2,800	2,800	2,800	9,561 r/	9,473 4/
Fuel use	180,000	180,000	180,000	175,000	175,000

See footnotes at end of table.

TABLE 1--Continued  
GERMANY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/ 3/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/	
<b>MINERAL FUELS AND RELATED MATERIALS--Continued</b>						
<b>Petroleum:</b>						
Crude	thousand 42-gallon barrels	21,638	20,756	20,361	21,146	19,728 4/
<b>Refinery products:</b>						
Liquefied petroleum gas	do.	35,287	32,352	29,208	29,255	31,888 4/
Gasoline including aviation	do.	246,660	226,058	219,311	223,465	310,182 4/
Naphtha	do.	81,736	79,058	73,925	81,379	82,648 4/
Mineral jelly and wax e/	do.	3,600	3,600	3,600	1,527 r/ 4/	1,309 4/
Kerosene and jet fuel	do.	24,258	25,691	28,094	211,676 r/	224,114 4/
Distillate fuel oil	do.	337,416	353,052	338,744	265,555 r/	238,407 4/
Refinery gas	do.	3,600 e/	3,437	2,821	3,227	2,706 4/
Lubricants e/	do.	4,800	4,800	4,800	10,787 r/ 4/	11,298 4/
Nonlubricating oils e/	do.	7,000	7,000	7,000	7,000	8,197 4/
Residual fuel oil	do.	78,588	77,769	70,216	14,626 r/	8,671 4/
Bitumen and other residues e/	do.	25,000	25,000	26,000	16,968 r/ 4/	15,206 4/
Bituminous mixtures e/	do.	1,200	1,200	1,200	1,200	1,199 4/
Petroleum coke	do.	5,247	5,813	7,399	7,539	10,428 4/
Unspecified	do.	18,000	18,000	16,000 e/	18,242 r/	16,254 4/
Total e/	do.	872,000	863,000	828,000	892,000 r/	962,507 4/

e/ Estimated. r/ Revised. -- Zero.

1/ Table contains data available through January 2001.

2/ Data are from a combined Germany.

3/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

4/ Reported figure.

5/ Includes speigeleisen, unspecified crude iron, and blast furnace ferromanganese with 2% or more carbon.

TABLE 2  
GERMANY: 1998 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES

(Thousand dollars)

Mineral commodity	Exports to EU	Imports from EU	Net gain or (loss)	Exports to the world	Imports from the world	Net gain or (loss)
<b>Crude industrial minerals:</b>						
Cement, hydraulic	174,905	113,609	61,296	206,134	298,214	(92,080)
Clays, crude	121,136	26,371	94,765	136,433	65,022	71,411
Feldspar	997	5,687	(4,690)	3,462	14,059	(10,597)
Fertilizer materials, crude and manufactured	517,982	552,116	(34,134)	1,086,203	855,299	230,904
Granite, sandstone etc.	4,595	46,019	(41,424)	8,537	91,991	(83,454)
Limestone, for lime, cement	1,780	2,755	(975)	1,834	18,970	(17,136)
Salt and brine	64,123	64,004	119	90,387	70,303	20,084
Steatite, natural, talc	1,038	46,847	(45,809)	3,393	50,534	(47,141)
Other	454,623	424,677	29,946	644,512	850,244	(205,732)
Total	1,341,179	1,282,085	59,094	2,180,895	2,314,636	(133,741)
<b>Metalliferous ores:</b>						
Chromium	1,850	153	1,697	3,133	23,555	(20,422)
Copper	5,747	38,715	(32,968)	6,283	271,426	(265,143)
Molybdenum	38	37,611	(37,573)	187	65,117	(64,930)
Zinc	12,561	55,669	(43,108)	12,572	119,183	(106,611)
Other (including waste and scrap)	61,453	246,424	(184,971)	96,258	2,037,062	(1,940,804)
Total	81,649	378,572	(296,923)	118,433	2,516,343	(2,397,910)
<b>Metals:</b>						
Aluminium	3,160,592	2,667,289	493,303	4,825,321	5,237,999	(412,678)
Iron and steel 1/	14,442,405	11,701,448	2,740,957	23,632,141	18,415,973	5,216,168
Lead	76,176	56,775	19,401	103,260	99,593	3,667
Mercury	901	79	822	2,058	217	1,841
Other nonferrous metals	3,221,218	2,752,088	469,130	5,290,083	6,312,999	(1,022,916)
Total	20,901,292	17,177,679	3,723,613	33,852,863	30,066,781	3,786,082
Mineral fuels	2,031,046	7,226,792	(5,195,746)	5,634,742	25,421,186	(19,786,444)

1/ Includes ferroalloys and silicon metal.

Source: United Nations Statistical Office (microfiche).

TABLE 3  
GERMANY: EXPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity		Total	Destinations	
			United States	Other (principal)
<b>METALS</b>				
Alkali and alkaline-earth metals:				
Alkali metals	value, thousands	\$8,119	\$135	Switzerland \$5,641; Israel \$673; France \$492.
Alkaline-earth metals		3,780	89	Belgium-Luxembourg 387; France 190; Slovenia 34.
Aluminum:				
Ore and concentrate		35,749	--	France 12,285; Finland 4,974; Sweden 3,796.
Oxides and hydroxides		666,890	75,198	Netherlands 110,607; Italy 71,118; France 54,908.
Ash and residue		19,643	--	Norway 6,617; Netherlands 5,913; Spain 4,186.
Metal including alloys:				
Scrap		528,381	992	Italy 135,289; Netherlands 68,861; Austria 60,608.
Unwrought		236,686	436	Austria 34,680; France 32,553; Italy 30,486.
Semimanufactures	thousand tons	1,090	72	United Kingdom 147; Italy 135; France 114.
Antimony:				
Oxides		1,053	26	Italy 154; Austria 78; Czech Republic 55.
Metal including alloys, all forms	value, thousands	\$256	\$61	United Kingdom \$56; Belgium-Luxembourg \$35; Finland \$26.
Arsenic, metal including alloys, all forms		16	15	United Kingdom 1.
Beryllium, metal including alloys, all forms	value, thousands	\$477	\$39	Ireland \$104; France \$71; Hungary \$67.
Bismuth, metal including alloys, all forms		113	41	Austria 8; Russia 8; Sweden 8.
Cadmium, metal including alloys, all forms	value, thousands	\$56	--	Sweden \$13; Czech Republic \$6; unspecified Asia \$13.
Chromium:				
Ore and concentrate		16,470	2	France 4,275; Czech Republic 3,230; Italy 1,974.
Metal including alloys, all forms		1,037	90	France 131; Netherlands 66; unspecified Asia 68.
Cobalt:				
Oxides and hydroxides		115	2	France 32; Italy 15; Spain 15.
Metal including alloys, all forms		1,111	209	United Kingdom 175; France 140; Spain 96.
Copper:				
Ore and concentrate		11,894	--	Sweden 11,663; Canada 164; Belgium-Luxembourg 64.
Matte and speiss including cement copper		17	--	Iran 8; Poland 5; Switzerland 4.
Oxides and hydroxides		3,061	22	United Kingdom 546; Singapore 460; United Arab Emirates 256.
Sulfate		3,238	50	France 1,432; Netherlands 703; United Kingdom 188.
Ash and residue		9,164	21	Belgium-Luxembourg 5,169; Netherlands 2,008; Italy 468.
Metal including alloys:				
Scrap		306,009	1,579	Italy 97,800; Belgium-Luxembourg 72,122; Austria 25,871.
Unwrought		138,122	587	France 38,863; Italy 33,004; Sweden 10,163.
Semimanufactures		835,982	38,678	Italy 119,464; France 102,637; Austria 65,240.
Germanium, metal including alloys, all forms	value, thousands	\$1,962	\$375	United Kingdom \$770; Israel \$255; Italy \$224.
Gold:				
Waste and sweepings	do.	\$4,397	\$306	Switzerland \$2,451; Belgium-Luxembourg \$1,554; Turkey \$84.
Metal including alloys, unwrought and partly wrought	do.	\$569,248	\$4,479	Switzerland \$143,151; Thailand \$51,537; United Kingdom \$47,889.
Iron and steel:				
Ore and concentrate:				
Excluding roasted pyrite		4,465	--	France 1,739; Switzerland 1,215; Belgium-Luxembourg 501.
Pyrite, roasted		13,678	--	All to Switzerland.
Metal:				
Scrap	thousand tons	7,011	(1/)	Belgium-Luxembourg 2,143; France 1,228; Netherlands 1,186.
Pig iron, cast iron, related materials		102,605	1,304	France 26,871; Italy 15,686; unspecified 20,410.
Ferroalloys:				
Ferrochromium		59,651	--	France 3,390; Italy 2,730; unspecified 42,725.
Ferromanganese		17,739	--	Austria 4,109; Belgium-Luxembourg 3,398; Netherlands 2,577.
Ferromolybdenum		674	--	France 145; Belgium-Luxembourg 126; Austria 115.
Ferronickel		909	--	Belgium-Luxembourg 877; France 32.
Ferroniobium		305	--	Slovakia 109; United Kingdom 32; Belgium-Luxembourg 22.
Ferrosilicochromium		1,018	--	Belgium-Luxembourg 510; Austria 387; Hungary 38.
Ferrosilicomanganese		11,254	--	Belgium-Luxembourg 5,879; Netherlands 1,821; France 1,141.
Ferrosilicon		44,918	416	Belgium-Luxembourg 13,582; France 12,441; Netherlands 2,076.
Ferrotitanium and ferrosilicotitanium		2,297	26	France 987; Sweden 242; Italy 222.
Ferrotungsten and ferrosilicotungsten		118	1	Austria 94; Belgium-Luxembourg 8; United Kingdom 5.
Ferrovandium		326	10	Italy 58; United Kingdom 58; Belgium-Luxembourg 39.
Silicon metal		7,936	371	France 1,883; Austria 1,561; Japan 822.
Unspecified		24,056	190	Italy 5,360; France 5,155; Netherlands 2,296.
Steel, primary forms	thousand tons	3,918	231	France 672; Italy 611; Spain 437.

See footnotes at end of table.

TABLE 3--Continued  
GERMANY: EXPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
METALS--Continued			
Iron and steel--Continued:			
Metal--Continued:			
Semimanufactures:			
Flat-rolled products:			
Of iron or nonalloy steel:			
Not clad, plated, coated	thousand tons	6,609	288 Italy 985; France 862; Belgium-Luxembourg 703.
Clad, plated, coated	do.	3,127	295 France 357; Netherlands 283; United Kingdom 237.
Of alloy steel	do.	2,310	153 Belgium-Luxembourg 331; Italy 256; France 192.
Bars, rods, angles, shapes, sections	do.	5,045	284 Netherlands 877; France 721; Italy 474.
Rails and accessories		122,354	26,756 Finland 31,110; Switzerland 9,876; Brazil 5,952.
Wire		286,895	8,796 France 79,988; Netherlands 30,698; Switzerland 24,935.
Tubes, pipes, fittings	thousand tons	3,202	175 Netherlands 314; Poland 274; France 264.
Lead:			
Ore and concentrate		5,169	-- China 5,000; Austria 120; Poland 49.
Oxides		20,382	2 Sweden 4,149; Czech Republic 3,388; United Kingdom 2,558.
Ash and residue		112	-- Belgium-Luxembourg 107; France 5.
Metal including alloys:			
Scrap		14,904	38 Netherlands 6,039; Belgium-Luxembourg 4,141; France 3,631.
Unwrought		88,906	513 Czech Republic 20,933; Austria 17,024; Netherlands 14,231.
Semimanufactures		26,449	340 France 7,569; Denmark 5,080; Belgium-Luxembourg 2,978.
Lithium oxides and hydroxides		636	3 Slovenia 85; United Kingdom 85; Sweden 65.
Magnesium, metal including alloys:			
Scrap		4,692	33 United Kingdom 2,166; Norway 1,672; Netherlands 366.
Unwrought		2,160	3 Austria 1,885; France 92; Belgium-Luxembourg 48.
Semimanufactures		2,510	51 United Kingdom 518; France 363; India 357.
Manganese:			
Ore and concentrate		163	2 Iran 48; Slovakia 20; Czech Republic 14.
Oxides		1,195	65 France 123; United Kingdom 120; Italy 115.
Metal including alloys, all forms		8,247	347 Australia 1,527; Austria 1,206; France 582.
Mercury		140	3 Turkey 24; Australia 13; Syria 12.
Molybdenum:			
Ore and concentrate:			
Roasted		35	-- Poland 28; Italy 4; Austria 1.
Unroasted	value, thousands	\$3	-- All to Japan.
Oxides and hydroxides		773	4 Austria 521; Sweden 184; Italy 44.
Metal including alloys, semimanufactures	value, thousands	\$8,441	\$683 United Kingdom \$1,453; Czech Republic \$853; Sweden \$712.
Nickel:			
Ore and concentrate		30	-- All to France.
Matte and speiss	value, thousands	\$9	-- Poland \$6; Switzerland \$2; Austria \$1.
Oxides and hydroxides		44	4 Sweden 16; Switzerland 5; Slovenia 4.
Metal including alloys:			
Scrap		6,667	819 Sweden 3,611; Netherlands 571; Italy 376.
Unwrought		21,896	2 France 5,860; Austria 1,865; Italy 1,308.
Semimanufactures	value, thousands	\$268,718	\$65,221 France \$29,437; United Kingdom \$26,101; Italy \$18,542.
Platinum-group metals:			
Waste and sweepings	do.	\$18,077	\$172 Belgium-Luxembourg \$8,110; United Kingdom \$5,263; Norway \$2,990.
Metal including alloys, unwrought and partly wrought:			
Palladium	do.	\$212,820	\$56,992 Switzerland \$47,574; Japan \$21,751; Brazil \$19,440.
Platinum	do.	\$328,332	\$71,109 Switzerland \$45,001; Japan \$35,426; Brazil \$33,730.
Rhodium	do.	\$48,021	\$13,825 Switzerland \$8,618; United Kingdom \$7,628; Brazil \$6,045.
Iridium, osmium, ruthenium	do.	\$16,291	\$6,882 Japan \$6,255; United Kingdom \$1,538; Hong Kong, China \$303.
Rare-earth, metals including alloys, all forms		21	(1/) Sweden 8; Saudi Arabia 4; Austria 3.
Selenium, elemental		108	6 Spain 28; Philippines 18; United Kingdom 13.
Silver:			
Ore and concentrate	value, thousands	\$605	-- All to United Kingdom.
Metal including alloys, unwrought and partly wrought	do.	\$348,064	\$2,289 Italy \$110,370; United Kingdom \$70,098; Belgium-Luxembourg \$36,266.
Tantalum, metal including alloys, all forms	value, thousands	\$45,662	\$67 United Kingdom \$1,615; Netherlands \$264; unspecified \$42,863.

See footnotes at end of table.

TABLE 3--Continued  
GERMANY: EXPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Destinations		
		United States	Other (principal)	
<b>METALS--Continued</b>				
Tin metal including alloys:				
Scrap	567	--	Belgium-Luxembourg 343; Netherlands 207; Switzerland 16.	
Unwrought	1,454	53	Finland 185; Netherlands 172; Austria 162.	
Semimanufactures	2,660	73	Austria 622; Italy 308; Hungary 221.	
Titanium:				
Ore and concentrate	11,256	--	Belgium-Luxembourg 10,682; France 144; Venezuela 92.	
Oxides	57,029	12,768	Republic of Korea 3,768; Canada 3,650; unspecified Asia 8,057.	
Metal including alloys, all forms	3,586	428	United Kingdom 1,193; Belgium-Luxembourg 230; United Arab Emirates 199.	
Tungsten metal including alloys:				
Unwrought	296	--	Unspecified.	
Semimanufactures	322	43	France 53; Republic of Korea 46; Israel 33.	
Uranium and thorium:				
Oxides and other compounds	value, thousands	\$84,424	\$73,298	United Kingdom \$6,398; France \$3,903; Sweden \$122.
Metal including all forms:				
Uranium	do.	\$837	--	United Kingdom \$716; Canada \$108; France \$8.
Thorium	do.	\$1,193	\$4	Russia \$1,145; Republic of Korea \$23; Netherlands \$5.
Vanadium:				
Oxides and hydroxides	162	--	Unspecified.	
Ash and residue	188	103	Austria 85.	
Metal including alloys, all forms	583	10	Russia 346; United Kingdom 101; Japan 72.	
Zinc:				
Ore and concentrate	56,507	--	Sweden 41,209; France 10,738; Belgium-Luxembourg 3,423.	
Oxides	26,413	--	Unspecified.	
Blue powder	7,577	--	Netherlands 1,316; France 1,202; Belgium-Luxembourg 1,140.	
Ash and residue	31,119	8	Belgium-Luxembourg 13,518; France 9,237; Italy 3,996.	
Metal including alloys:				
Scrap	35,682	99	Belgium-Luxembourg 12,587; Italy 7,502; unspecified Asia 5,460.	
Unwrought	90,485	60	Austria 20,786; France 20,772; Italy 17,013.	
Semimanufactures	44,556	18	Spain 924; France 470; unspecified 40,818.	
Zirconium:				
Ore and concentrate	6,166	2	Poland 1,482; France 1,005; Iran 891.	
Metal including alloys:				
Unwrought, waste, scrap, powders	110	65	Belgium-Luxembourg 11; United Kingdom 6; Japan 4.	
Semimanufactures	125	47	Brazil 23; France 16; Republic of Korea 14.	
Other:				
Ores and concentrates	83	--	Philippines 60; China 23.	
Ashes and residues	4,657	492	Netherlands 1,702; Belgium-Luxembourg 1,002; Italy 479.	
<b>INDUSTRIAL MINERALS</b>				
Abrasives, n.e.s.:				
Natural, corundum, emery, pumice, etc.	133,352	21	Netherlands 108,082; Belgium-Luxembourg 13,629; France 5,860.	
Artificial:				
Corundum	46,062	6,929	Austria 7,776; France 5,976; United Kingdom 5,059.	
Silicon carbide	20,534	--	Unspecified.	
Dust and powder of precious and semiprecious stones				
including diamonds	value, thousands	\$36,880	\$225	Ireland \$19,277; Austria \$8,726; Greece \$2,477.
Grinding and polishing wheels and stones	do.	\$272,940	\$14,336	France \$37,946; Austria \$19,664; Switzerland \$17,275.
Barite and witherite	14,771	171	France 3,280; Switzerland 1,754; Netherlands 1,587.	
Boron:				
Crude natural borates	167	--	Yugoslavia 61; Czech Republic 25; Sweden 24.	
Oxides and acids	2,446	1	Czech Republic 1,248; Poland 259; France 114.	
Cement	thousand tons	2,934	(1/)	Netherlands 1,740; Belgium-Luxembourg 286; Poland 212.
Chalk	74,170	131	Sweden 26,220; Denmark 16,229; Netherlands 12,624.	
Clays, crude:				
Bentonite	53,994	62	Netherlands 14,123; Poland 8,132; France 5,517.	
Chamotte earth and dinas earth	94,778	134	Italy 30,929; France 21,906; Netherlands 16,776.	
Fire clay	75,435	30	Austria 45,463; Italy 8,615; Netherlands 7,363.	
Fuller's earth	312	--	Switzerland 66; Austria 64; India 54.	
Kaolin	194,577	51	Switzerland 40,678; Italy 38,147; Austria 29,952.	
Unspecified	thousand tons	3,015	(1/)	Italy 1,473; Netherlands 697; Belgium-Luxembourg 397.

See footnotes at end of table.

TABLE 3--Continued  
GERMANY: EXPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Destinations	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
Cryolite and chiolite	77	--	United Kingdom 24; France 19; Austria 13.
Diamond, natural:			
Gem, not set or strung	value, thousands	\$63,562	\$9,307 Switzerland \$7,437; Hong Kong, China \$7,214; Belgium-Luxembourg \$5,955.
Industrial stones	do.	\$5,515	\$54 Netherlands \$1,706; Switzerland \$1,521; Israel \$1,001.
Dust and powder	do.	\$36,076	\$225 Ireland \$19,277; Austria \$8,726; Greece \$2,477.
Diatomite and other infusorial earth		10,413	-- Netherlands 5,465; Russia 772; France 549.
Feldspar		35,301	183 France 19,850; Netherlands 3,861; Austria 3,195.
Fertilizer materials:			
Crude, n.e.s.		31,395	13 France 14,124; Switzerland 6,264; Netherlands 4,145.
Manufactured:			
Ammonia		493,244	43 France 147,915; Norway 93,191; United Kingdom 83,020.
Nitrogenous	thousand tons	1,658	29 Poland 223; Italy 100; France 99.
Phosphatic		60,053	-- France 18,260; United Kingdom 16,523; Netherlands 8,186.
Potassic	thousand tons	5,142	110 France 940; Belgium-Luxembourg 904; Brazil 708.
Unspecified and mixed		638,248	479 France 57,975; Switzerland 15,751; unspecified 527,900.
Fluorspar		15,883	-- Austria 4,987; Poland 3,911; Belgium-Luxembourg 2,252.
Graphite, natural		8,819	68 France 1,869; Italy 1,081; Netherlands 991.
Gypsum and plaster		998,225	93 Belgium-Luxembourg 265,866; United Kingdom 138,753; France 102,894.
Iodine		547	3 Spain 447; Poland 20; Australia 13.
Kyanite and related materials:			
Mullite		5,048	253 Poland 1,538; France 867; Italy 805.
Andalusite, kyanite, sillimanite		3,024	-- Italy 758; Austria 757; Hungary 449.
Lime		572,860	58 Netherlands 341,609; France 103,578; Switzerland 39,956.
Magnesium compounds:			
Magnesite, crude		603	-- Poland 166; France 130; Belgium-Luxembourg 65.
Oxides and hydroxides		71,512	100 France 35,663; Austria 16,906; Netherlands 4,208.
Other	thousand tons	1,054	31 France 285; Malaysia 148; Belgium-Luxembourg 103.
Mica:			
Crude including splittings and waste		2,018	22 Austria 295; Italy 261; Netherlands 260.
Worked including agglomerated splittings		135	6 Czech Republic 21; United Kingdom 20; Austria 10.
Nitrates, crude		12,855	1,094 France 1,943; Sweden 997; unspecified Asia 1,855.
Phosphates, crude		1,661	4 Austria 1,382; Slovakia 215; Macedonia 27.
Phosphorus, elemental		1,244	90 Denmark 338; Italy 182; United Kingdom 169.
Pigments, mineral:			
Natural, crude		367	31 Italy 131; Austria 102; France 31.
Iron oxides and hydroxides, processed		120,963	-- Mainly unspecified.
Precious and semiprecious stones other than diamond:			
Natural	value, thousands	\$123,527	\$30,585 Switzerland \$20,418; Hong Kong, China \$17,849; Japan \$11,591.
Synthetic	do.	\$21,283	\$12,960 Philippines \$1,053; Thailand \$1,044; France \$776.
Pyrite, unroasted		375	-- Unspecified.
Quartz crystal, piezoelectric	value, thousands	\$8,003	\$56 Slovakia \$6,344; Switzerland \$479; Italy \$320.
Salt and brine	thousand tons	2,751	1 Belgium-Luxembourg 960; Sweden 453; Czech Republic 273.
Sodium compounds, n.e.s.:			
Soda ash, manufactured		576,122	29 Netherlands 62,601; France 34,629; unspecified 388,533.
Sulfate, manufactured		42,247	2 Czech Republic 19,785; Hungary 5,096; Switzerland 2,832.
Stone, sand and gravel:			
Dimension stone:			
Crude and partly worked		154,352	183 Switzerland 90,343; Netherlands 32,120; Denmark 8,311.
Worked		108,051	3,676 Austria 28,872; Switzerland 14,680; Belgium-Luxembourg 14,425.
Dolomite, chiefly refractory-grade		307,325	132 Belgium-Luxembourg 174,101; Netherlands 67,251; France 29,356.
Gravel and crushed rock	thousand tons	12,682	(1/) Netherlands 9,547; Belgium-Luxembourg 1,209; Switzerland 1,027.
Limestone other than dimension		83,760	-- Netherlands 31,891; Belgium-Luxembourg 24,621; France 13,884.
Quartz and quartzite		442,239	108 Netherlands 371,772; Belgium-Luxembourg 40,859; Czech Republic 6,910.
Sand other than metal-bearing	thousand tons	7,784	1 Netherlands 5,755; Belgium-Luxembourg 1,307; Switzerland 345.
Sulfur:			
Dioxide		9,287	-- Austria 7,230; Spain 498; Belgium-Luxembourg 259.
Sulfuric acid	thousand tons	1,171	116 Italy 382; Belgium-Luxembourg 272; United Kingdom 115.

See footnotes at end of table.

TABLE 3--Continued  
GERMANY: EXPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Destinations		
		United States	Other (principal)	
<b>INDUSTRIAL MINERALS--Continued</b>				
<b>Sulfur--Continued:</b>				
<b>Elemental:</b>				
Crude including native and byproduct	thousand tons	1,082	92	Morocco 190; Belgium-Luxembourg 133; Brazil 118.
Colloidal, precipitated, sublimed		368	--	Netherlands 84; Hungary 48; Italy 43.
Talc, steatite, soapstone, pyrophyllite		6,251	2	Slovenia 853; Denmark 712; Greece 642.
Vermiculite, perlite, chlorite		2,857	--	Belgium-Luxembourg 700; France 658; Switzerland 631.
<b>Other:</b>				
Crude		395,006	3,888	Netherlands 85,379; France 81,378; Finland 33,751.
<b>Slag and dross, not metal-bearing:</b>				
Granulated slag (slag sand) from iron and steel industry		397,734	--	France 317,877; Netherlands 50,308; Belgium-Luxembourg 25,812.
Waste, scale, dross, slag of iron or steel industry	thousand tons	1,351	104	France 692; Netherlands 498; Italy 29.
Slag and ash n.e.s., including seaweed ash (kelp)		897,231	3,209	Czech Republic 218,719; Netherlands 200,439; Belgium-Luxembourg 98,674.
<b>MINERAL FUELS AND RELATED MATERIALS</b>				
Asphalt and bitumen, natural		11,033	48	Denmark 8,095; Switzerland 1,213; Belgium-Luxembourg 1,116.
Carbon black		128,869	4,526	France 30,184; Belgium-Luxembourg 19,251; United Kingdom 12,455.
<b>Coal:</b>				
Briquets of anthracite and bituminous coal		10,095	--	France 4,560; United Kingdom 2,251; Switzerland 1,538.
Lignite including briquets		474,105	--	Belgium-Luxembourg 229,559; Austria 87,922; France 69,983.
All grades including briquets		806,545	--	Belgium-Luxembourg 356,590; Austria 201,653; France 130,569.
Coke and semicoke		149,747	29	Austria 27,509; France 25,427; Switzerland 20,921.
Gas, natural, liquefied		23	--	Netherlands 15; Switzerland 8.
Peat including briquets and litter	thousand tons	2,596	(1/)	Netherlands 1,415; Italy 268; France 240.
<b>Petroleum:</b>				
Crude	thousand 42-gallon barrels	1,137	--	Sweden 758; Netherlands 379.
<b>Refinery products:</b>				
Liquefied petroleum gas	do.	172,051	(1/)	Netherlands 1,763; Poland 1,125; unspecified 164,627.
Mineral jelly and wax	do.	1,871	323	Netherlands 215; France 138; Belgium-Luxembourg 117.
Asphalt	do.	2,905	370	Austria 786; Switzerland 487; Netherlands 407.
Bitumen and other residues	do.	3,167	1	Austria 796; Netherlands 560; Switzerland 488.
Bituminous mixtures	42-gallon barrels	262,671	1,236	Netherlands 64,042; Austria 62,921; Switzerland 33,760.
Petroleum coke	thousand 42-gallon barrels	3,129	1	Netherlands 1,109; France 755; Slovakia 329.
Unspecified	do.	116,693	18,685	Austria 14,898; Netherlands 11,079; France 10,548.

-- Zero.

1/ Less than 1/2 unit.

Source: United Nations Statistical Office (microfiche).

TABLE 4  
GERMANY: IMPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Sources		
		United States	Other (principal)	
<b>METALS</b>				
<b>Alkali and alkaline-earth metals:</b>				
Alkali metals		5,965	328	France 3,118; Russia 2,267; United Kingdom 203.
Alkaline-earth metals		1,319	8	France 546; Russia 389; Belgium-Luxembourg 357.
<b>Aluminum:</b>				
Ore and concentrate	thousand tons	1,531	2	Guinea 844; Australia 371; China 161.
Oxides and hydroxides	do.	1,123	6	Jamaica 521; Ireland 163; Italy 116.
Ash and residue		50,883	10	France 14,047; Belgium-Luxembourg 8,390; Netherlands 7,859.
<b>Metal including alloys:</b>				
Scrap		479,473	451	Russia 149,860; Ukraine 33,233; Austria 31,844.
Unwrought	thousand tons	1,472	1	Norway 237; United Kingdom 198; Netherlands 142.
Semimanufactures		746,811	8,416	Belgium-Luxembourg 85,604; France 82,814; Netherlands 66,712.

See footnotes at end of table.

TABLE 4--Continued  
GERMANY: IMPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>METALS--Continued</b>			
<b>Antimony:</b>			
Oxides	5,166	92	Belgium-Luxembourg 1,449; China 1,414; United Kingdom 1,002.
Metal including alloys, all forms	817	9	China 684; Japan 62; Turkey 60.
Arsenic, metal including alloys, all forms	38	1	China 25; Japan 7; United Kingdom 5.
Beryllium, metal including alloys, all forms value, thousands	\$977	\$776	Estonia \$74; United Kingdom \$48; France \$43.
Bismuth, metal including alloys, all forms	1,312	1	Peru 716; United Kingdom 447; China 54.
Cadmium, metal including alloys, all forms value, thousands	\$68	\$14	Belgium-Luxembourg \$28; United Kingdom \$17; Netherlands \$5.
<b>Chromium:</b>			
Ore and concentrate	201,728	5	South Africa 157,665; Turkey 40,825; Cuba 1,938.
Oxides and hydroxides	11,079	2,305	Kazakhstan 4,967; Poland 1,229; Italy 1,211.
Metal including alloys, all forms	1,885	48	United Kingdom 394; France 360; Russia 322.
<b>Cobalt:</b>			
Oxides and hydroxides	473	2	Finland 273; United Kingdom 76; Belgium-Luxembourg 38.
Metal including alloys, all forms	2,462	165	Russia 365; Belgium-Luxembourg 256; United Kingdom 213.
<b>Copper:</b>			
Ore and concentrate	605,692	4	Chile 195,019; Portugal 142,412; Argentina 83,264.
Matte and speiss including cement copper	7,913	6,630	Romania 1,056; South Africa 200; Austria 22.
Oxides and hydroxides	2,163	191	Italy 739; Poland 354; Belgium-Luxembourg 353.
Sulfate	8,886	9	Russia 2,755; Poland 1,932; France 1,256.
Ash and residue	50,489	5,925	Italy 23,560; Austria 5,267; France 3,248.
<b>Metal including alloys:</b>			
Scrap	610,159	7,505	Russia 230,976; Netherlands 40,253; France 23,773.
Unwrought	666,211	6,826	Russia 248,770; Chile 138,034; Belgium-Luxembourg 64,082.
Semimanufactures	441,737	5,254	France 131,656; Belgium-Luxembourg 65,642; Poland 56,492.
Germanium, metal including alloys, all forms value, thousands	\$3,345	\$623	Belgium-Luxembourg \$1,990; Russia \$450; China \$155.
<b>Gold:</b>			
Waste and sweepings do.	\$117,248	\$3,420	Sweden \$18,856; Switzerland \$13,432; Eritrea \$12,801.
Metal including alloys, unwrought and partly wrought do.	\$1,365,703	\$39,907	United Kingdom \$539,352; Switzerland \$254,038; Kyrgyzstan \$189,511.
<b>Iron and steel:</b>			
<b>Ore and concentrate:</b>			
Excluding roasted pyrite thousand tons	53,596	1	Brazil 24,338; Sweden 11,404; Canada 7,863.
Pyrite, roasted	86,363	--	Norway 86,347; Spain 16.
<b>Metal:</b>			
Scrap thousand tons	2,676	3	Netherlands 698; Czech Republic 472; Russia 326.
Pig iron, cast iron, related materials	445,398	1,109	Canada 70,534; Poland 68,999; France 53,814.
<b>Ferroalloys:</b>			
Ferchromium	449,690	19	South Africa 187,522; Kazakhstan 158,865; unspecified 36,126.
Ferromanganese	180,031	1	France 99,117; South Africa 23,182; Spain 18,404.
Ferromolybdenum	9,820	--	China 5,562; Belgium-Luxembourg 1,399; United Kingdom 1,248.
Ferronickel	56,092	84	Indonesia 13,791; Dominican Republic 12,590; Greece 11,749.
Ferroniobium	3,356	34	Brazil 3,171; France 47; Netherlands 42.
Ferrosilicochromium	19,590	--	Russia 1,859; Zimbabwe 1,610; unspecified 15,860.
Ferrosilicomanganese	101,236	--	Norway 30,738; France 12,556; Slovakia 11,098.
Ferrosilicon	175,340	137	Norway 76,418; Slovakia 25,749; Poland 23,355.
Ferrotitanium and ferrosilicotitanium	8,374	--	Russia 4,378; United Kingdom 2,572; Latvia 707.
Ferrotungsten and ferrosilicotungsten	643	--	Russia 244; China 229; Latvia 82.
Ferrovandium	5,499	54	Austria 3,339; Czech Republic 753; Belgium-Luxembourg 477.
Silicon metal	117,154	46	Norway 41,076; Brazil 20,049; France 16,400.
Unspecified	27,116	852	France 11,524; China 3,383; Brazil 3,050.
Steel, primary forms	1,593,313	123	Belgium-Luxembourg 455,507; Netherlands 172,045; Poland 157,055.
<b>Semimanufactures:</b>			
<b>Flat-rolled products:</b>			
<b>Of iron or nonalloy steel:</b>			
Not clad, plated, coated thousand tons	5,273	(1/)	Belgium-Luxembourg 1,229; Netherlands 549; Austria 493.
Clad, plated, coated	2,888,347	9,789	Belgium-Luxembourg 1,036,762; Austria 582,912; France 453,553.
<b>Of alloy steel</b>			
Bars, rods, angles, shapes, sections	1,018,897	7,070	France 400,371; Belgium-Luxembourg 105,275; Sweden 102,669.
Bars, rods, angles, shapes, sections	5,278,287	13,108	France 910,313; Italy 842,032; United Kingdom 496,886.
Rails and accessories	154,517	40	Poland 62,530; Austria 25,361; Sweden 14,943.
Wire	514,473	1,238	Czech Republic 109,877; Belgium-Luxembourg 83,718; France 65,471.

See footnotes at end of table.

TABLE 4--Continued  
GERMANY: IMPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
METALS--Continued			
Iron and steel--Continued:			
Metal--Continued:			
Semimanufactures--Continued:			
Tubes, pipes, fittings	1,838,902	9,231	Italy 379,853; Czech Republic 186,272; France 152,177.
Lead:			
Ore and concentrate	135,266	--	Canada 33,025; Australia 27,733; Poland 22,682.
Oxides	22,698	4	France 7,361; Poland 863; unspecified 12,100.
Ash and residue	298,491	8,742	Canada 103,500; Italy 33,270; France 26,595.
Metal including alloys:			
Scrap	13,725	9	Russia 2,799; Czech Republic 2,645; Switzerland 1,999.
Unwrought	122,634	6,812	United Kingdom 29,429; France 20,219; Belgium-Luxembourg 19,020.
Semimanufactures	5,922	10	Belgium-Luxembourg 5,087; Sweden 222; Netherlands 187.
Lithium oxides and hydroxides	4,576	1,204	Switzerland 2,462; Russia 703; China 160.
Magnesium, metal including alloys:			
Scrap	1,548	64	Turkey 450; China 221; Ukraine 164.
Unwrought	27,771	2,417	Norway 4,800; Canada 4,730; Netherlands 4,430.
Semimanufactures	10,968	611	Turkey 3,219; Austria 2,283; Belgium-Luxembourg 665.
Manganese:			
Ore and concentrate	23,125	--	Ghana 12,257; Australia 3,644; Morocco 2,304.
Oxides	11,752	421	South Africa 3,955; Ireland 3,504; Belgium-Luxembourg 1,144.
Metal including alloys, all forms	42,932	17	Ukraine 24,354; China 11,326; Russia 2,644.
Mercury	40	6	United Kingdom 11; Algeria 10; Slovenia 5.
Molybdenum:			
Ore and concentrate:			
Roasted	12,105	401	Netherlands 4,167; Chile 2,490; United Kingdom 1,986.
Unroasted	865	681	Netherlands 144; Canada 40.
Oxides and hydroxides	702	5	Chile 241; Netherlands 202; United Kingdom 141.
Metal including alloys:			
Unwrought,	149	36	Austria 48; Russia 43; United Kingdom 19.
Semimanufactures	298	36	Austria 219; Belgium-Luxembourg 12; Japan 11.
Nickel:			
Matte and speiss	11,560	--	Canada 11,408; United Kingdom 120; Netherlands 20.
Oxides and hydroxides	468	10	Czech Republic 118; Netherlands 104; Australia 61.
Metal including alloys:			
Scrap	7,464	610	France 1,921; Russia 1,499; Netherlands 505.
Unwrought	78,519	322	Russia 41,659; Australia 6,821; United Kingdom 6,075.
Semimanufactures	14,350	2,009	France 4,689; Austria 1,673; United Kingdom 1,598.
Platinum-group metals:			
Waste and sweepings value, thousands	\$272,899	\$52,157	Switzerland \$46,850; Belgium-Luxembourg \$15,362; Japan \$13,018.
Metal including alloys, unwrought and partly wrought:			
Palladium do.	\$201,872	\$15,602	South Africa \$59,520; Switzerland \$38,898; Russia \$37,808.
Platinum do.	\$279,914	\$17,592	South Africa \$148,136; Switzerland \$49,731; Netherlands \$20,186.
Rhodium do.	\$52,327	\$1,592	South Africa \$30,461; United Kingdom \$11,980; Russia \$4,457.
Iridium, osmium, ruthenium do.	\$5,874	\$367	South Africa \$2,600; United Kingdom \$1,931; Japan \$375.
Rare-earth, metals including alloys, all forms	529	7	China 332; France 168; Belgium-Luxembourg 9.
Selenium, elemental	243	12	Canada 101; Poland 72; Belgium-Luxembourg 30.
Silicon, high-purity	612	390	Russia 97; Japan 67; Ukraine 40.
Silver:			
Ore and concentrate value, thousands	\$10,770	--	Peru \$10,769; Switzerland \$1.
Metal including alloys, unwrought and partly wrought do.	\$302,880	\$28,613	Poland \$39,831; United Kingdom \$37,874; France \$29,818.
Tantalum, metal including alloys, all forms	180	54	United Kingdom 34; Japan 29; Austria 15.
Tin:			
Ore and concentrate	10	1	Australia 9.
Metal including alloys:			
Scrap	410	3	Switzerland 76; United Kingdom 70; Austria 62.
Unwrought	21,953	263	China 11,828; Belgium-Luxembourg 2,292; Netherlands 2,064.
Semimanufactures	779	23	Netherlands 409; France 224; Belgium-Luxembourg 69.
Titanium:			
Ore and concentrate	622,379	--	Norway 266,616; Canada 161,428; South Africa 118,815.
Oxides	23,188	28	Slovenia 9,816; Belgium-Luxembourg 4,375; France 2,991.

See footnotes at end of table.

TABLE 4--Continued  
GERMANY: IMPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Sources		
		United States	Other (principal)	
METALS--Continued				
Titanium--Continued:				
Metal including alloys, all forms	8,542	626	United Kingdom 793; Russia 644; unspecified 4,182.	
Tungsten:				
Ore and concentrate	476	2	Russia 330; Czech Republic 63; Cyprus 23.	
Metal including alloys:				
Unwrought	1,188	72	Austria 547; United Kingdom 134; Belgium-Luxembourg 73.	
Semimanufactures	70	14	Austria 18; Belgium-Luxembourg 17; Spain 6.	
Uranium and thorium:				
Oxides and other compounds	value, thousands	\$247,369	\$35,203	Russia \$91,083; France \$60,035; United Kingdom \$36,792.
Metal including all forms:				
Uranium	do.	\$66,615	--	United Kingdom \$21,634; France \$16,668; Russia \$16,555.
Thorium	do.	\$231	\$18	France \$95; Czech Republic \$91; Argentina \$21.
Vanadium:				
Oxides and hydroxides		915	--	South Africa 767; Austria 48; unspecified 53.
Ash and residue		132	--	Hungary 59; Belgium-Luxembourg 47; United Kingdom 15.
Metal including alloys, all forms		48	1	South Africa 30; Russia 9; Netherlands 4.
Zinc:				
Ore and concentrate		378,131	30,849	Belgium-Luxembourg 168,737; Canada 94,502; Australia 32,875.
Oxides		19,089	250	Netherlands 5,705; Belgium-Luxembourg 3,119; Poland 1,665.
Blue powder		7,020	3	Belgium-Luxembourg 5,123; Norway 966; United Kingdom 511.
Ash and residue		46,423	400	Belgium-Luxembourg 6,780; Poland 6,544; Netherlands 6,086.
Metal including alloys:				
Scrap		5,817	--	Austria 992; Switzerland 727; Netherlands 415.
Unwrought		333,635	20	Belgium-Luxembourg 105,507; Netherlands 40,697; France 37,537.
Semimanufactures		69,810	9,462	France 21,679; Netherlands 8,871; Slovenia 8,374.
Zirconium metal including alloys, semimanufactures		463	273	France 148; Sweden 16; India 12.
Other:				
Precious metal ores and concentrates except silver	value, thousands	\$152,246	\$3,619	South Africa \$139,936; Sweden \$3,466; Czech Republic \$1,510.
Ashes and residues		149,386	2,407	Canada 103,500; Malaysia 10,268; France 7,156.
INDUSTRIAL MINERALS				
Abrasives, n.e.s.:				
Natural, corundum, emery, pumice, etc.		126,519	3,687	Iceland 70,792; Italy 28,253; Greece 11,557.
Artificial:				
Corundum		106,548	2,290	Austria 20,689; Russia 14,815; Canada 11,982.
Silicon carbide		97,080	3	Norway 21,068; Russia 9,731; unspecified 23,317.
Dust and powder of precious and semiprecious stones excluding diamonds				
	value, thousands	6	2	Switzerland \$3; United Kingdom \$1.
Grinding and polishing wheels and stones		18,453	178	Austria 2,788; Netherlands 1,988; Poland 1,817.
Asbestos, crude		190	--	Canada 176; Zimbabwe 14.
Barite and witherite		255,202	7	China 97,499; Bulgaria 64,346; France 54,960.
Boron:				
Crude natural borates		28,356	8	Turkey 27,372; Netherlands 518; Belgium-Luxembourg 447.
Oxides and acids		24,130	5,365	Italy 7,484; Turkey 3,430; Chile 3,079.
Cement	thousand tons	5,006	(1/)	Poland 1,946; Czech Republic 800; Belgium-Luxembourg 788.
Chalk		230,081	20	France 100,798; Belgium-Luxembourg 52,926; Denmark 42,378.
Clays, crude:				
Bentonite		243,544	31,632	Greece 55,378; Netherlands 34,396; Turkey 31,880.
Chamotte earth and dinas earth		115,183	46,716	China 20,360; France 6,061; Italy 3,982.
Fire clay		19,337	193	Czech Republic 11,627; France 4,206; Netherlands 2,996.
Fuller's earth		9,205	4,000	United Kingdom 2,542; Spain 1,491; Netherlands 857.
Kaolin		739,656	121,173	Czech Republic 164,688; Netherlands 104,638; Brazil 94,828.
Unspecified		84,444	2,168	Czech Republic 64,306; China 8,263; France 3,132.
Cryolite and chiolite		69	--	New Zealand 61; Austria 8.
Diamond, natural:				
Gem, not set or strung	value, thousands	\$266,637	\$7,041	Belgium-Luxembourg \$110,700; Israel \$68,887; India \$44,629.
Industrial stones	do.	\$10,778	\$1,175	Ireland \$2,800; Belgium-Luxembourg \$2,250; Switzerland \$1,382.
Dust and powder	do.	\$52,796	\$4,568	Ireland \$41,494; United Kingdom \$1,750; Belgium-Luxembourg \$1,310.
Diatomite and other infusorial earth		52,114	15,211	Denmark 19,340; Poland 8,014; France 4,684.

See footnotes at end of table.

TABLE 4--Continued  
GERMANY: IMPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
Feldspar	48,166	11	Norway 27,613; France 10,091; Italy 8,791.
Fertilizer materials:			
Crude, n.e.s.	21,882	204	Turkey 7,291; Netherlands 5,963; Belgium-Luxembourg 4,959.
Manufactured:			
Ammonia	169,641	117	Russia 55,915; Netherlands 49,437; Czech Republic 30,363.
Nitrogenous	thousand tons 4,710	(1/)	Netherlands 1,339; Belgium-Luxembourg 1,296; Czech Republic 426.
Phosphatic	210,099	--	Netherlands 66,332; Poland 27,568; Belgium-Luxembourg 6,194.
Potassic	113,785	182	Israel 70,421; France 28,706; Netherlands 8,643.
Unspecified and mixed	thousand tons 2,066	4	Belgium-Luxembourg 663; Netherlands 438; Russia 196.
Fluorspar	290,917	--	China 142,655; Kenya 25,334; unspecified 16,767.
Graphite, natural	39,212	80	China 17,379; Madagascar 3,836; unspecified 8,523.
Gypsum and plaster	252,964	1,944	France 94,385; Belgium-Luxembourg 54,583; Czech Republic 34,988.
Iodine	1,280	632	Japan 333; Chile 217; Belgium-Luxembourg 40.
Kyanite and related materials:			
Mullite	2,516	32	United Kingdom 992; Hungary 792; Canada 614.
Unspecified	56,003	5,359	South Africa 35,072; France 10,837; Netherlands 3,085.
Lime	699,583	8	France 329,720; Belgium-Luxembourg 189,358; Czech Republic 130,133.
Magnesium compounds:			
Magnesite, crude	8,365	56	Spain 3,659; Netherlands 2,074; Austria 1,024.
Oxides and hydroxides	471,104	24,624	China 188,676; Slovakia 66,701; Netherlands 54,089.
Other	37	--	All from Netherlands.
Mica:			
Crude including splittings and waste	27,471	436	Austria 9,774; India 7,747; France 5,613.
Worked including agglomerated splittings	754	3	Belgium-Luxembourg 303; Switzerland 189; France 77.
Nitrates, crude	3,520	2	Netherlands 1,325; Belgium-Luxembourg 738; Poland 447.
Phosphates, crude	252,976	11	Israel 140,986; Russia 65,895; Belgium-Luxembourg 20,312.
Phosphorus, elemental	31,102	12	Netherlands 15,953; China 10,833; Kazakhstan 1,700.
Pigments, mineral:			
Natural, crude	4,088	2	Austria 1,343; France 1,216; China 1,026.
Iron oxides and hydroxides, processed	42,807	(1/)	China 21,952; Italy 6,899; Belgium-Luxembourg 2,203.
Precious and semiprecious stones other than diamond:			
Natural	value, thousands \$87,393	\$7,405	Thailand \$20,651; Brazil \$11,873; Switzerland \$7,708.
Synthetic	do. \$19,565	\$1,050	Switzerland \$5,034; Ireland \$4,186; Austria \$1,910.
Pyrite, unroasted	163,644	1	Finland 137,919; Yugoslavia 23,297; Italy 1,976.
Quartz crystal, piezoelectric	value, thousands \$22,397	\$9,004	Japan \$10,318; China \$1,171; Russia \$571.
Salt and brine	1,583,410	228	Netherlands 1,428,102; France 46,589; United Kingdom 41,792.
Sodium compounds, n.e.s.:			
Soda ash, manufactured	208,239	18	France 94,770; Poland 55,475; Netherlands 43,223.
Sulfate, manufactured	56,192	39	Austria 20,834; Belgium-Luxembourg 15,453; Spain 8,255.
Stone, sand and gravel:			
Dimension stone:			
Crude and partly worked	543,153	936	Norway 72,218; France 67,967; Italy 54,236.
Worked	1,685,136	219	Italy 381,021; Poland 242,098; Portugal 216,998.
Dolomite, chiefly refractory-grade	495,355	--	Latvia 284,888; Belgium-Luxembourg 90,955; Norway 34,632.
Gravel and crushed rock	thousand tons 15,456	1	Norway 5,560; France 3,250; Sweden 1,407.
Limestone other than dimension	1,422,699	85	Poland 979,685; France 184,636; Czech Republic 132,574.
Quartz and quartzite	58,328	163	Netherlands 17,615; Austria 12,560; Belgium-Luxembourg 9,843.
Sand other than metal-bearing	thousand tons 2,869	6	France 1,784; Netherlands 530; Belgium-Luxembourg 206.
Sulfur:			
Elemental:			
Crude including native and byproduct	46,137	22,837	Poland 6,867; Netherlands 5,929; Belgium-Luxembourg 3,345.
Colloidal, precipitated, sublimed	1,636	13	United Kingdom 435; India 323; Italy 310.
Dioxide	3,638	42	Sweden 2,398; Switzerland 496; Poland 434.
Sulfuric acid	141,168	136	Netherlands 59,806; Norway 20,483; Switzerland 18,301.
Talc, steatite, soapstone, pyrophyllite	213,251	5,471	Austria 56,495; Finland 43,200; Netherlands 35,372.
Vermiculite, perlite, chlorite	71,106	2,000	Greece 29,920; Hungary 14,279; South africa 12,797.
Other:			
Crude	1,331,974	12,368	Norway 819,919; Spain 286,743; Netherlands 52,279.
Granulated slag (slag sand) from iron and steel industry	187,987	--	Belgium-Luxembourg 95,071; Austria 70,772; France 18,219.

See footnotes at end of table.

TABLE 4--Continued  
GERMANY: IMPORTS OF MINERAL COMMODITIES IN 1998

(Metric tons unless otherwise specified)

Commodity	Total	Sources	
		United States	Other (principal)
<b>INDUSTRIAL MINERALS--Continued</b>			
Other-Continued:			
Waste, scale, dross, slag of iron or steel industry	195,740	--	France 151,539; Switzerland 23,699; Belgium-Luxembourg 12,505.
Slag and ash, n.e.s., including seaweed ash (kelp)	578,353	4,308	Poland 293,150; France 138,725; Switzerland 51,462.
<b>MINERAL FUELS AND RELATED MATERIALS</b>			
Asphalt and bitumen, natural	23,741	10,833	Trinidad and Tobago 11,012; Czech Republic 1,250; France 328.
Carbon black	115,891	3,302	France 33,481; Netherlands 18,217; unspecified 16,814.
Coal:			
Anthracite	387,291	13,662	Colombia 108,849; Russia 81,310; Belgium-Luxembourg 80,983.
Bituminous thousand tons	18,832	1,309	South Africa 5,221; Poland 4,178; Colombia 2,578.
Briquets of anthracite and bituminous coal	103,957	--	France 42,755; Netherlands 39,056; Colombia 12,957.
Lignite including briquets	2,210,249	17	Czech Republic 2,069,658; Poland 81,970; Australia 54,500.
Coke and semicoke	4,472,964	181,183	Poland 2,377,510; China 352,322; Spain 326,634.
Gas, natural, gaseous thousand tons	60,628	--	Unspecified.
Peat including briquets and litter	415,116	--	Estonia 177,467; Latvia 96,844; Netherlands 51,793.
Petroleum:			
Crude thousand 42-gallon barrels	805,873	--	Russia 190,939; Norway 170,454; United Kingdom 143,388.
Refinery products:			
Liquefied petroleum gas do.	716,103	5	Netherlands 4,229; Belgium-Luxembourg 4,225; unspecified 703,285.
Mineral jelly and wax do.	3,149	449	Netherlands 387; France 382; unspecified 1,167.
Asphalt do.	3,730	3	Belgium-Luxembourg 1,804; Czech Republic 891; Netherlands 540.
Bitumen and other residues do.	4,719	3	Belgium-Luxembourg 1,825; Netherlands 1,451; Czech Republic 891.
Bituminous mixtures do.	151	3	Netherlands 93; Switzerland 35; France 9.
Petroleum coke do.	6,618	5,372	United Kingdom 332; Belgium-Luxembourg 207; Indonesia 179.
Unspecified do.	297,351	797	Netherlands 163,180; Belgium-Luxembourg 36,839; Russia 22,529.

-- Zero.

1/ Less than 1/2 unit.

Source: United Nations Statistical Office (microfiche).

TABLE 5  
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 1999

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	VAW Aluminium AG	Plant at Schwandorf (special aluminas)	450
Do.	Aluminium Oxid Stade GmbH (VAW, 50%)	Plant at Stade	750
Do.	Martinswerke GmbH (Alusuisse, 100%)	Plant at Bergheim (fused alumina)	350
Aluminum	VAW Aluminium AG	Smelters at Innwerke at Töging, Elbwerke at Stade, Rheinwerke at Neuss, Lippenwerke at Lünen (secondary)	300
Do.	Aluminium Essen GmbH	Smelter at Essen-Borbeck	95
Do.	Hamburger Aluminium-Werke GmbH (VAW, 33%)	Smelter at Hamburg	120
Cement	38 companies, the major ones are:	64 mills (grinding) including:	59,000
Do.	Heidelberger Zement AG	Plants at Blaubeuren-Schelklingen, Leimen, Hassmersheim, Burglengenfeld, Kiefersfelden, and others	(9,200)
Do.	Dyckerhoff AG	Plants at Amoneburg, Golheim, Neuwied, Neubeckum, and others	(7,250)
Do.	E. Schwenk, Zementwerke KG	Plants at Allmendingen, Karlstadt, and Mergelstetten	(6,000)
Do.	Anneliese Zementwerke AG	Plants at Ennigerloh-Nord, Ennigerloh-Sud, Geske, and Paderborn	(3,500)
Do.	Zementwerke Deunan GmbH	Plant at Deuna	(3,000)
Chalk	Kreidewerke Rugen GmbH	Quarries on Rugen Island	500

See footnote at end of table.

TABLE 5--Continued  
GERMANY: STRUCTURE OF THE MINERAL INDUSTRY IN 1999

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of main facilities	Annual capacity
Coal, anthracite and bituminous		Four companies:	About 27 mines, including:	72,500
Do.		Ruhrkohle AG	14 mines in Ruhr region	40,000
Do.		Saarbergwerke AG	5 mines in Saar basin	14,000
Do.		Preussag Anthrazit GmbH	Mine at Ibbenbüren	2,500
Copper		Norddeutsche Affinerie AG (Dresdner Bank AG, 20%; Degussa AG, 10%)	Smelter and refinery, both at Hamburg	290
Do.		Hüttenwerke Kaysers AG	Refinery at Lünen	350
Kaolin		Kemmlitzer Kaolinwerke GmbH	Mines at Gröppendorf, Oschatz, and Sachsen	100
Do.		do.	Plant at Sachen	100
Limestone		Harz Kalk GmbH	Quarries at Bad Kösen, Rubelaand, and Kaltes Tal	6,000
Lead		Metaleurop Weser Blei GmbH	Smelter and refinery at Nordenham	120
Do.		Berzelius Metallhütten GmbH	QSL smelter at Stolberg	75
Do.		do.	Refinery at Duisberg	120
Do.		Norddeutsche Affinerie AG	Refinery at Hamburg	50
Lignite		Rheinische Braunkohlenwerke AG (Rheinbraun AG)	Surface mines in Rhenish mining area: Garzweiler, Bergheim, Inden, and Hambach	105,000
Do.		Lausitzer Braunkohle AG (LAUBAG)	Surface mines in Lausatian mining area: Jänschwalde/Cottbus-Nord, Welzow-Süd, and Nochten/Reichswalde	50,000
Natural gas	million cubic meters	Brigitta Erdgas und Erdöl GmbH and Elwerath Erdgas-Erdöl GmbH	Plants at Clenze and Grossenkmeten	9,500
Do.		do. Mobil Erdgas-Erdöl GmbH	Plants at Scholen	4,000
Do.		do. Other companies	Plants at Duste, Rutenbrock, and others	2,000
Petroleum:				
Crude	thousand 42-gallon barrels	The largest companies are:	6 areas with about 85 oilfields, including:	80,000
Do.		do. Elwerath Erdgas-Erdöl GmbH	West of Ems River	(30,000)
Do.		do. Wintershall AG	Weser-Ems Rivers	(21,000)
Do.		do. Deutsche Texaco AG	Elbe-Weser Rivers	(20,000)
Refined	do.	About 25 companies, of which the largest:	20 refineries, including:	2,062,000
Do.		do. Deutsche Shell AG	Refineries at Godorf, Hamburg, and Grasbrook	(256,000)
Do.		do. Esso AG	Refineries at Karlsruhe and Ingolstadt	(245,000)
Do.		do. Ruhr Oel AG	Refinery at Gelsenkirchen	(215,500)
Do.		do. Erdoel Raffinerie Neustadt GmbH	Refinery at Neustadt-Donau	(145,000)
Potash		Kali und Salz AG	Mines at Bergmannsseggen-Hugo, Niedersachsen-Riedel, Salzdettfurth, Sigmundshall, Hattorf, Neuhoof-Ellers, and Wintershall	3,500 1/
Do.		MDK (Mitteldeutsche Kali und Sondershausen)	10 mines mostly in the State of Thüringen	2,500 1/
Salt (rock)		Kali und Salz AG	Mines at Bad Friedrichshall-Kochendorf, Braunschweig-Lüneburg, Heilbronn, Riedel, Stetten, and Wesel (Borth)	15,000
Steel		Major companies including:	About 25 plants, including:	45,000
Do.		Thyssen Stahl AG	Plants at Krefeld, Duisburg, Hattungen, Oberhausen and Witten	(13,000)
Do.		Fried. Krupp AG Hoesch-Krupp	Plants at Bochum, Dortmund, and Rheinhausen	(9,000)
Do.		Stahlwerke Peine-Salzgitter AG	Plants at Peine and Salzgitter	(4,500)
Do.		Klöckner-Werke AG	Plants at Bremen and Osnabruck	(4,200)
Zinc		Ruhr-Zink GmbH	Refinery at Datteln	200
Do.		Berzelius Metallhütten GmbH	Imperial smelter and fire refinery at Duisburg	100
Do.		Metaleurop Weser Zink GmbH	Refinery at Nordenham	130

1/ K<sub>2</sub>O.